HARLEY-DAVIDSON UNIVERSITY

# TECHNICAL FORUM

## 2008 MODEL YEAR

# ALL MODELS

## 105th Anniversary Motorcycles for 2008

- Anniversary copper and vivid black paint
- Tank Cloisonné with copper 105th anniversary logo
- Copper vinyl insert on seats and pillions
- Air Cleaner/Timing cover inserts
- Serialization with unique name plate displays individual number out of the total built for that particular model
- Cast wheels painted gloss black
- 41,000 units estimated
- 14 models

2008 MODEL YEAR TECHNICAL FORUM ALL MODELS

## 105th Anniversary Motorcycles for 2008 cont.

- FLHTCU(A), FLHRC(A), FLTR(A), FLHX(A), FLSTC, FXSTC, FLSTF, FLSTN, FXDC, FXDL, FXDWG, XL1200C, XL1200L, VRSCAW(A)
- Laced wheel option available

## NEW Jiffy stand interlock switch

- For HDI, UK and all Police Models meets European regulations
- Motorcycle will not start if jiffy stand is down while rider attempts to start motorcycle in gear
- While running in neutral, if the jiffy stand is not retracted before putting motorcycle in gear, motorcycle will stall
- If jiffy stand drops while rolling in gear, the instruments and tell tale lights will flash and odometer will display message (SidE StAnd)
- Hall effect sensor

2008 MODEL YEAR TECHNICAL FORUM ALL MODELS

## NEW Wheel Bearings

- 25mm wheel bearings
- Same design characteristics of 2007 Softail® front axles and bearings (except Springer)

## NEW Axles

- New hollow axles
- New torque specs for some axles

2008 MODEL YEAR TECHNICAL FORUM ALL MODELS

## NEW Rubber Shift Pegs

- Improved retention
- New torque specification
- Supersedes all pegs

# VRSC™ FAMILY

## UPDATED VRSC™ 1250cc Motor

- 2008 VRSC™ models receive 1250cc Revolution powertrain
- 105mm bore 72mm stroke
- High flow cast cylinder heads as used on 06 CVO / 07 VRSCX

**Important Service Note:**
Applying crankcase sealant to the half-moons of the cam cover gasket will no longer be necessary

2008 MODEL YEAR TECHNICAL FORUM VRSC™

## VRSC™ 2008 Models

- VRSCD (A) Night Rod® (ABS)
- VRSCAW (A) V-Rod® (ABS)
- VRSCDX (A) Night Rod® Special (ABS)

NOTE:
- VRSCR discontinued for 2008

## NEW Exhaust Cams

- Automatic compression release has been removed
- Change due to larger battery from 2007 design changes
- 2008 VRSC™ exhaust cams will be stamped with a part number
- Provide easy differentiation to 1130cc cams to 1250cc cams
- Will not retrofit to prior models

2002-2007 VRSC 2008 1250cc only

2008 MODEL YEAR TECHNICAL FORUM VRSC™

## NEW Front Breather

- Updated front cylinder breather hose has new internal ribbed design with improved sealing
- Will retrofit to 2005 models

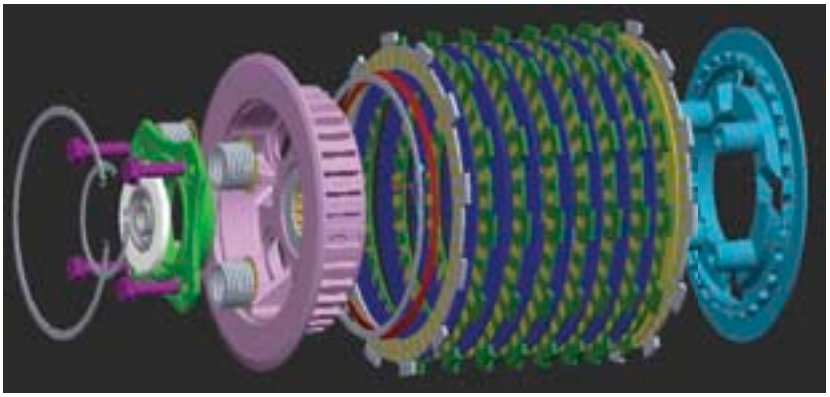
**Important Service Note:**

Caution when removing airbox as the "Rifle shell," breather will lift out of head as fitment of the new hose to the breather shell is very tight.

Caution to not drop fasteners or shims in exposed breather hole.

## NEW Slipper Clutch

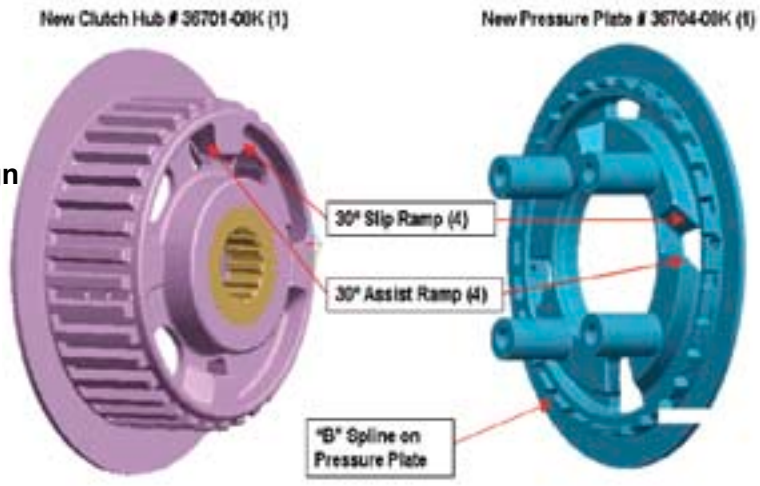
- Reduced clutch lever effort and provides lowest clutch effort of any Harley-Davidson® models
- Reduces rear wheel hop when downshifting rapidly
- Clutch basket remains unchanged, clutch plates pressure plate, hub and lifter plate are all unique and retrofit to all prior VRSC™ models



2008 MODEL YEAR TECHNICAL FORUM VRSC™

## NEW Slipper Clutch cont.

- New clutch hub holding tool required for service; HD-48625
- Easily identified by 4 spring lifter plate versus previous 5 spring design



## NEW Head Gaskets

- New 105 mm head gaskets have a geometry change and use an improved material
- Will not retrofit on prior model year 1250cc VRSC™ models

OLD

NEW

2008 MODEL YEAR TECHNICAL FORUM VRSC™

## NEW Voltage Regulator Connector

- New regulator connector is common with other models

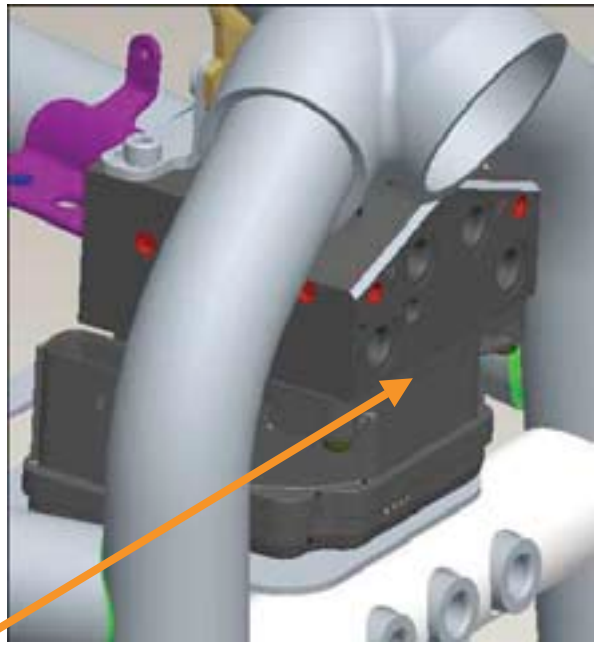
## NEW Voltage Regulator Location

- New regulator fastens to radiator cover

2008 MODEL YEAR TECHNICAL FORUM VRSC™

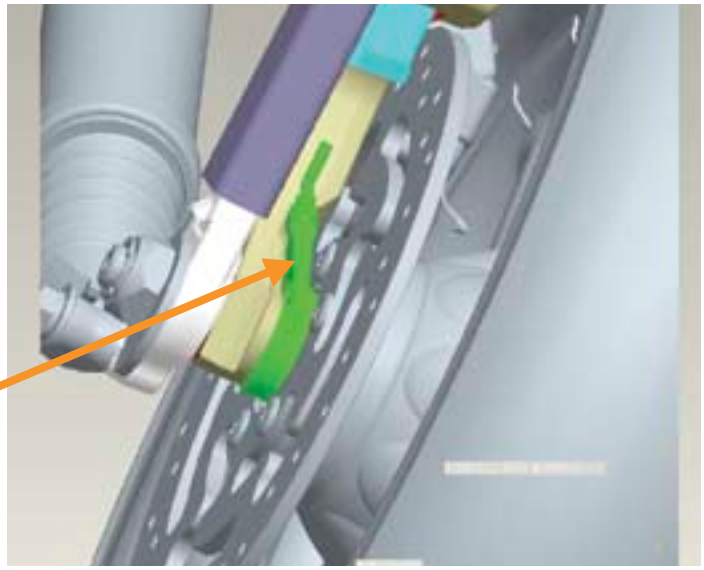
## NEW ABS Brakes

- Non-linked ABS system with separate circuits to front and rear wheels
- ABS module located above radiator
- Factory option for 2008 VRSC™ models; cost prohibitive to upgrade a 2008 non-ABS VRSC™ models
- ABS requires unique wiring harness
- Digital Technician™ II is required to properly service ABS: see service manual
- Non ABS models have a decorative cover



## NEW ABS Brakes cont.

- ABS lines are designed to ease assembly
- Invisible to the motorcycle
- Wheel speed sensor have specific care and usage instructions found in 2008 service manual
- Wheel speed sensors have locating tab and must be oriented prior to applying torque to axle nuts
- Voltage regulator relocated as ABS module needed voltage regulator relocation to radiator cover



FL spacer shown

2008 MODEL YEAR TECHNICAL FORUM VRSC™

## NEW ABS Brakes cont.

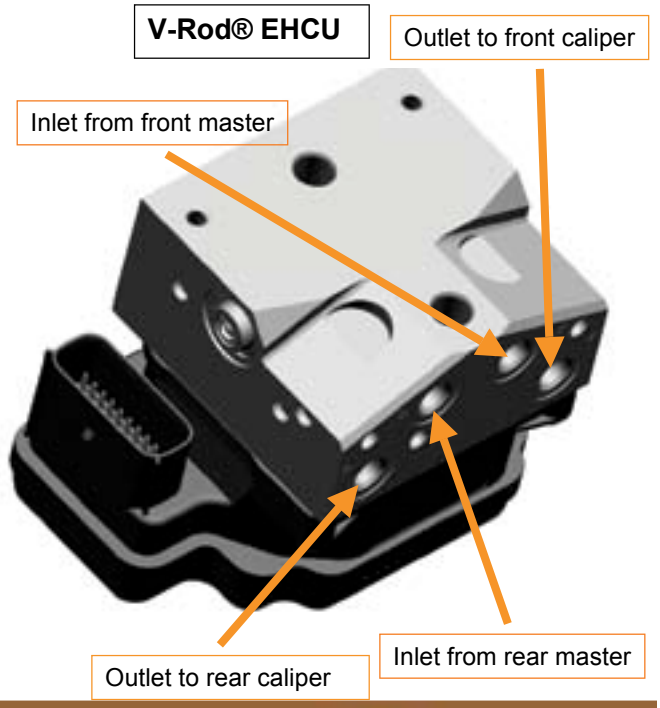
- ABS speed sensor pickup located in wheel bearing
- ABS bearings have the gray side of the bearing facing outward
- ABS system will not retrofit to earlier models

FACES OUT

FACES IN

## NEW ABS Brakes cont.

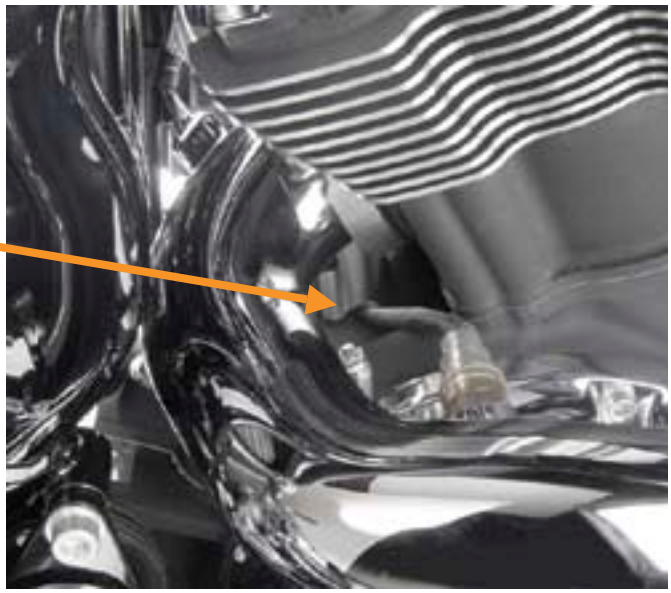
- EHCU-Electro/Hydraulic Control Unit
- EHCU is not serviceable




2008 MODEL YEAR TECHNICAL FORUM VRSC™

## $O^2$ Sensor Feedback

- Front and rear exhaust $O^2$ sensors
- Closed loop system
- Rear $O^2$ sensor bracket protects wire from header



## NEW Rear Drive Sprocket

- Sprocket profile changed to accommodate 25mm wheel bearings and axles

2008 MODEL YEAR TECHNICAL FORUM VRSC™

## NEW 5-Spoke Wheel

- VRSCD (A) models will feature this new wheel

## NEW Laced Wheel

- Standard on all 2008 VRSCAW (A)
- This includes Anniversary VRSCAW (A) models

# SPORTSTER® FAMILY

## NEW Head Gasket

- Eliminates use of o-rings for cylinder dowels
- Gasket is installed either side up
- Will retrofit

**Important Service Note:**
O-rings (HD-26432-76A) will be eliminated from gasket kits

2008 MODEL YEAR TECHNICAL FORUM SPORTSTER®

## 1200R Refresh

- XL 1200C fuel tank
- 883R wheels with black highlights
- XL 883R available (HDI, UK, Japan, Brazil only)

## NEW Nightster™ HDI

- License plate located on an extension of rear fender
- Stop/Tail/Turn signals are legal in Europe with LED illumination
- The LED Stop/Tail/Turn lights are the first of their kind in the industry
- Longer rear shocks-same as current 883R (HDI, UK)
- Jiffy stand used common with 1200C (HDI, UK)

**Important Service Note:**
LED Light assemblies are sealed units

# DYNA® FAMILY

## NEW Dyna® Model FXDF Fat Bob™

- Strong, and bold...the completely new Dyna® Fat Bob™ model
- Cast 16" x 5" rear wheel and 180mm X 16"rear tire - new tread
- License plate mounting accommodates wider fender
- Cast 16"x 3" front wheel with new 130mm X 16" front tire with new tread
- Dual semi-floating disc and 4-piston front brake calipers

2008 MODEL YEAR TECHNICAL FORUM DYNA®

## NEW Dyna® Model FXDF Fat Bob™ cont.

- Front fender
- New brake lines
- New wide glide 49mm forks with black powder coat sliders
- Dual headlight
- New "Tommy Gun" (2 into 1 into 2) exhaust system

**Important Sales Note:**
Cosmetic design will allow head pipes to show through design cuts in rear heat shield

## NEW Dyna® Model FXDF Fat Bob™ cont.

- Tall, black handlebar risers, one piece top clamp & mirrors
- 1.25” diameter handlebar with shortened hand control mounting area
- Reduces gap between controls and weld
- Handlebar has flat profile and are drag style with internal wiring
- 29º frame rake and 28º steering head angle

2008 MODEL YEAR TECHNICAL FORUM DYNA®

## NEW Dyna® Model FXDF Fat Bob™ cont.

- Forward and standard mount rider peg option
- New- fully covered retro-FL style rear shocks
- New - Bobtail rear fender accommodates the new 180mm wide tire
- New - seat for new fender contour
- Wide Glide® style fuel tank & fuel system with medallions

## Limited 105th Anniversary Dyna® Models

- FXDC
- FXDL
- FXDWG Dyna® Wide Glide® 105th Anniversary Special Edition North American markets only
- The Wide Glide® model will only be available as an limited production anniversary model

2008 MODEL YEAR TECHNICAL FORUM DYNA®

## NEW FXDWG Dyna® Handlebar Clamp

- Redesigned top handlebar clamp
- One piece design clamp
- 1.25” diameter handlebars
- Retrofits to 2006-2007 FXDWG models with internally wired handlebars

## NEW FXDB Model

- 1 pc. Top triple tree with integrated cast risers (without bushings)

## All Dyna® Models

- New Triple Trees
  - Pinch bolt boss areas in the upper and lower triple trees have been redesigned
  - Retrofit to 2006-2007 Dyna® models as a set

## All Dyna® Models cont.

- Redesigned rear upper shock mounting
- New frame fender forgings to accommodate wide fender and tire

2008 MODEL YEAR TECHNICAL FORUM DYNA®

## All Dyna® Models cont.

- New air cleaner design will be unique to Dyna® for 2008

## All Dyna® NEW Models cont.

- New FXD fuel tank top plate seal; has a different color and will retrofit
- New steering stem cap
  - Changed stud material to stainless
  - Minimize rust/corrosion
- New front electrical caddy
- New voltage regulator with integrated connectors

2008 MODEL YEAR TECHNICAL FORUM DYNA®

## NEW Front Brakes

- New four piston front caliper
- New brake pads clip into place for retention
- Provides full retraction of pads when brakes are disengaged
- New brake pad material
- Reduced reach front brake lever by ¼”
  - Will not retrofit

## NEW Rear Brakes

- New 2 piston floating rear caliper for Dyna® and Softail® models and mounting bracket

2008 MODEL YEAR TECHNICAL FORUM DYNA®

## NEW Transmission Case and Exhaust Bracket

- Boss from transmission case has been moved to the exhaust bracket
- 2008 Transmission case must use this bracket

# SOFTAIL® FAMILY

## NEW Dunlop® Front Tire

- New tread pattern for 21” front Softail® wheels
- Retrofitable

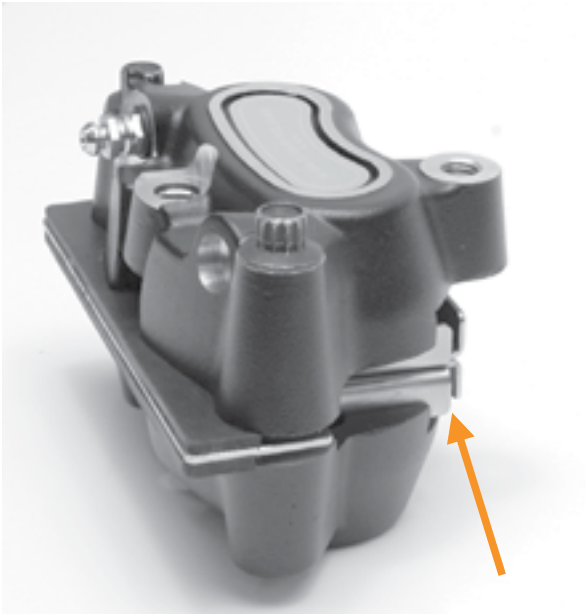
OLD

NEW



## NEW Front Brakes

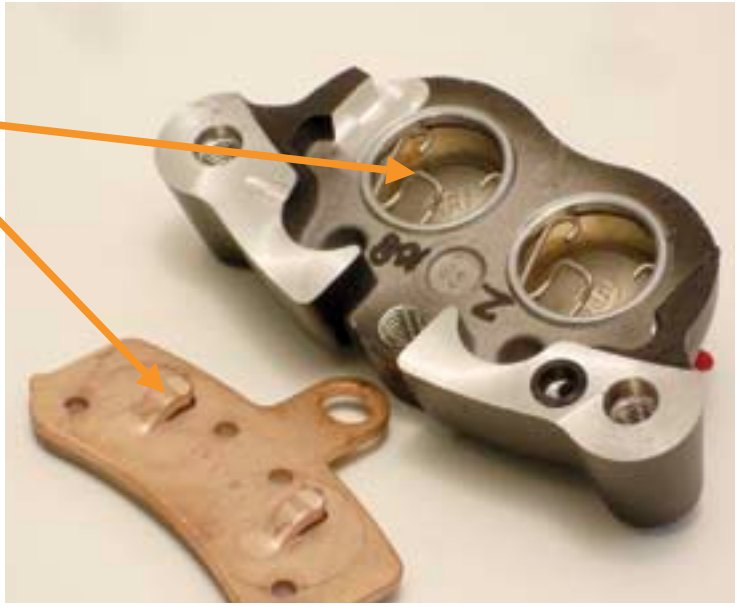
- New four piston front caliper
- New brake pad material
- Will not retrofit



Front Brake Piston Removal Tool HD-48649 shown

## NEW Front Brakes cont.

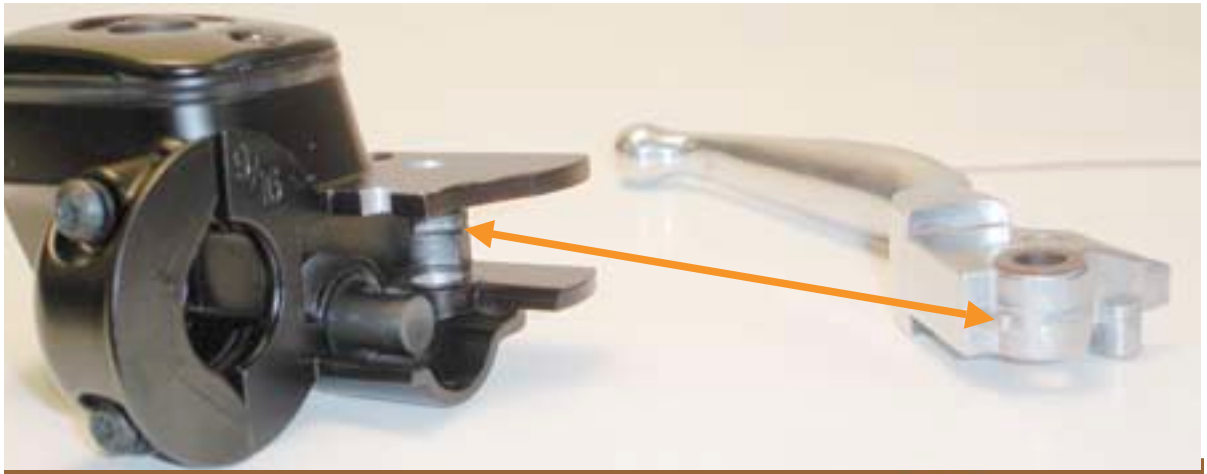
- New brake pads clip into place for retention
- Provides positive retraction of pads when brakes are disengaged



2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

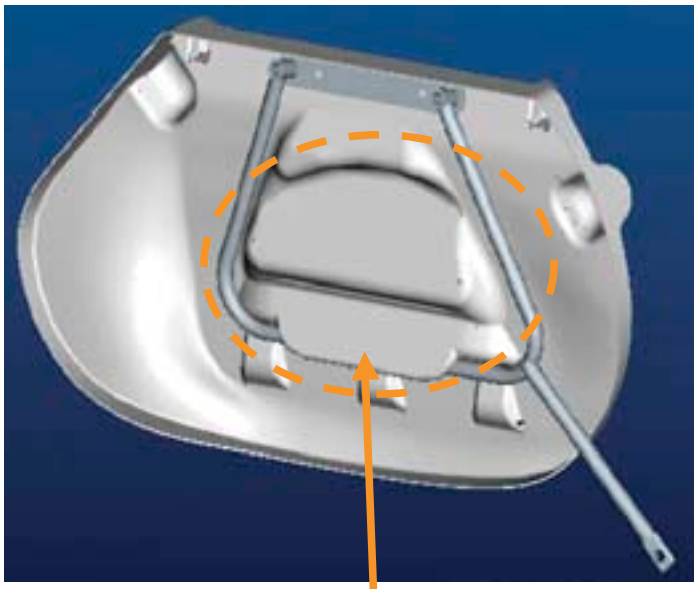
## NEW Front Brakes cont.

- Reduced reach front brake lever by ¼”
- Boss on lever fits to master cylinder
- Will not retrofit



## FLSTC Left Side Saddlebag Change

- Backplate changed allowing clearance to new axle and swingarm
- Will retrofit



Area of change



## NEW 25mm Hollow Rear Axle

- New bearing spacer sleeve inside wheel
- New spacers and axle adjustment spacer on right side between caliper mounting and swingarm
- New axle nut and retention clip with new torque spec of 95-105 ft. lbs.
- 36mm nut
- For all Softail® models

## NEW Softail® Breather

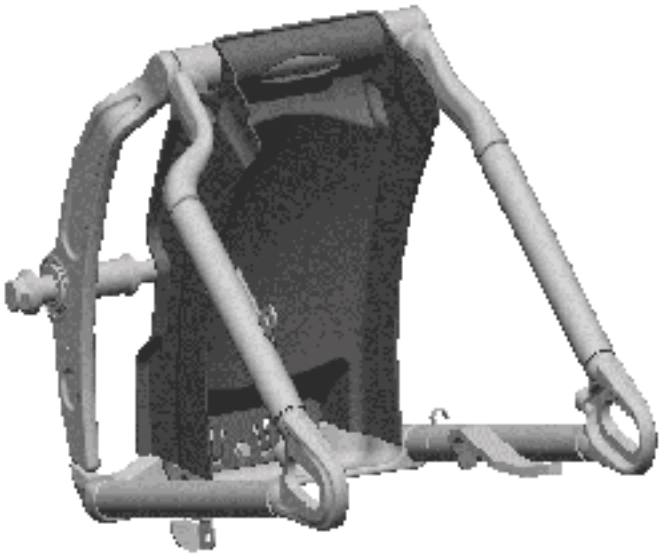
- Breather bolts common with FLT
- The new breather bolts are .310" longer in length than previous version
- Backplate has modified brass inserts to replace o-rings
- This change to be common with Touring models which will feature Electronic Throttle Control

**Important Service Note:**
Breather bolts are one time use only and have a high temperature sealant

2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Swingarm

- All new part numbers for '08
- Pivot shaft – right-side spacer change, left-side spacer carried-over
- Increased vehicle stiffness
- For 200mm and 150mm equipped Softail® models



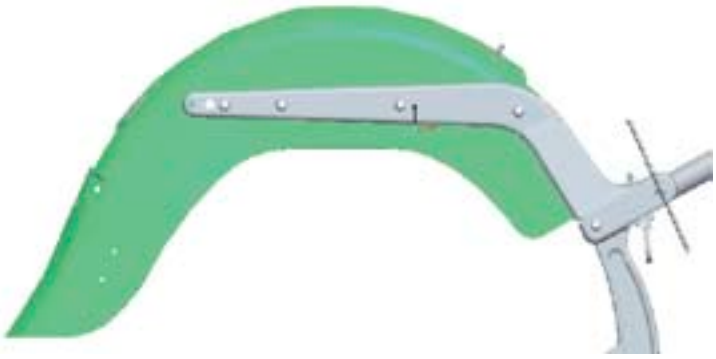
## NEW Rear Brakes

- Single sided two piston floating caliper & mounting bracket are two separate pieces
- Stainless steel braided brake lines with vinyl coating
- Brake lines are also rubber coated at rear and route under pivot shaft
- New caliper mounting hardware
- Not retrofitable because of larger axle diameter
- Will not retrofit

2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

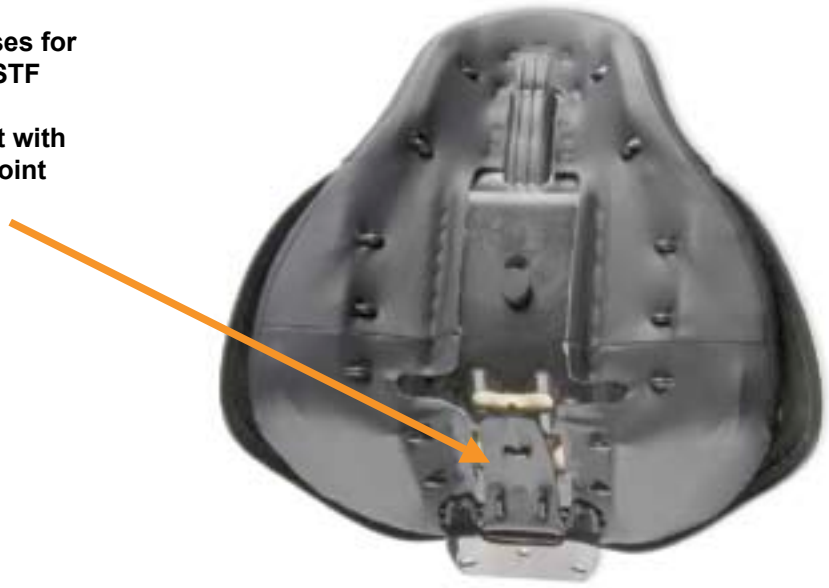
## NEW Rear Fender and Fender Joint

- Enables fender and struts to be loosely assembled on the bench
- Fender/strut assembly bolts to frame with four fasteners
- Fender joint provides additional tire to fender clearance
- All Softail® models except Rocker™ will feature the new rear fender joint
- 2007 paint sets will not fit 2008 Softail® models due to changes in tl tunnel fuel level sender mounting



## NEW Seats

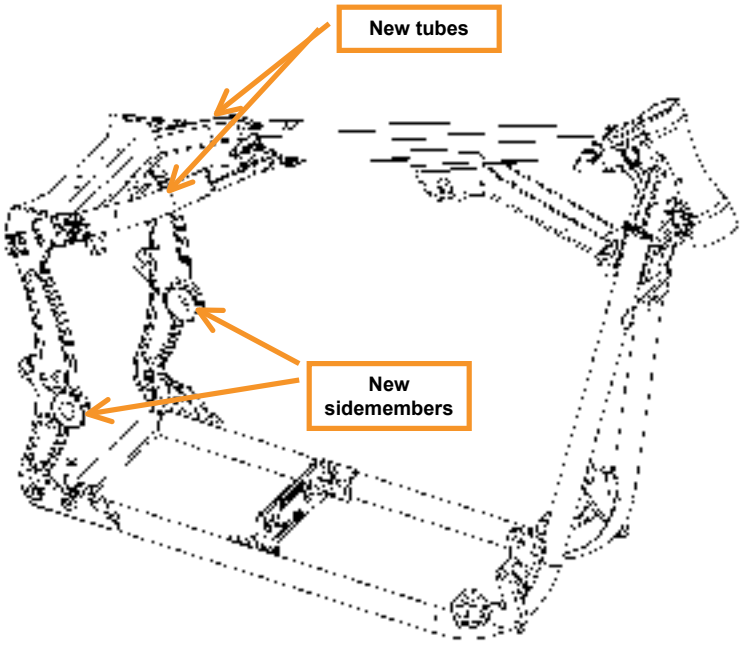
- Injection molded bases for FLSTC, FLSTN & FLSTF
- Seat base made to fit with the new rear fender joint assembly



2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Frame changes

- New side members, top cross member, stay tubes,
- New pivot shaft



## NEW Voltage Regulator

- New regulator with integrated connectors
- New mounting bracket
- Modified regulator caddy

2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Ignition Coil

- Commonize of styling change for FLT-no process change for service
- Coil retrofits and is a 07A part number

Current Coil w/ natural color potting

## NEW Battery

- Positive and negative battery cables now have top mounted connections
- New battery cable caddy routes battery cable and O² sensor wiring
- New rubber boots at battery & starter connections
- New fuse block cover incorporates 40 amp fuse holder (installed at PDI)
- Softail® models will have battery connected when uncrated
- Security antenna relocated to front of battery except on Rocker® FXCWC

## NEW Fuel System

- New pump uses current connector 72436-04
- Fuel regulator, filter and float are new
- New retaining clip with added ground tab for fuel pump module
- Unique bracket for filter housing retention angular rotation/height
- Kevlar® braided nylon internal liner on fuel lines
- New crimp on hose ends

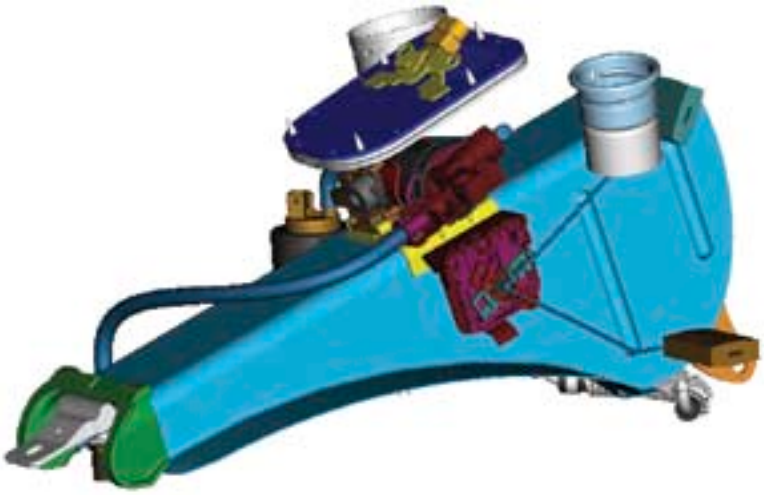
**Current**

**New**

Connector shorter for improved clearance

## NEW Fuel System cont.

- Top plate & gasket incorporates filter module
- New tunnel bracket
- Metal connector at induction module
- Fuel pump module mounts to left side of tank tunnel similar to Dyna®
- Fuel sender mounts to right side of tank tunnel require new fuel gauge



2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Belt Guards, Debris Deflectors and Splash Guards

- Belt guards have one common width with four different finishes
- Debris deflectors have two different widths 20mm and 1”and will retrofit
- Splash guards have two new part numbers for 150mm and 200mm tires
- Splash guards have a snap on top and a single fastener on bottom to eliminate weld-on tabs on swingarm

## NEW Softail® Mufflers

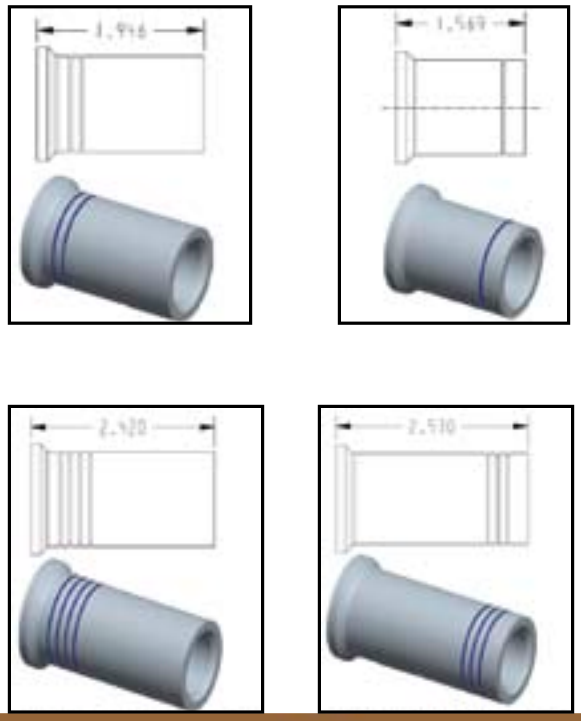
- California mufflers have catalysts
- Shorty duals: FXST/C/B & FLSTC
- Shotgun: FLSTF
- Shotgun 2: FLSTN

## NEW Speedometer

- New part number
- Approximate distance to empty displays when low fuel light activates

## NEW Transmission Spacers

- Four new transmission spacers for 2008 Softail® models
- Each spacer will have machined lines that will distinguish its fitment and location
- Softail® models will have one and two machined lines with one being to the right as shown
- Softail® Rocker™ models will have three and four machined lines with three being to the right as shown



2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Softail® Rocker™ FXCW, FXCWC

## NEW Softail® Rocker™ FXCW, FXCWC

- Two piece split handle bar
- Unique styled oil tank with recessed filler neck
- New brake lines
- Access battery and fuse without tools
- 28º lean angle
- New 5-spoke belt sprocket
- Wide powertrain – two engine assemblies-silver, and black and chrome, which have an offset to the transmission case and a wide inner primary housing

2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Softail® Rocker™ cont.

- 5 spoke front wheel
  - 90mm/90-19” tire
- 5 spoke rear wheel
  - 240mm/40-18” tire

## NEW Softail® Rocker™ FXCW Seat

- Solo seat model

2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Softail® Rocker™ FXCWC Seat

- Converts easily to a two-up seat without tools

## NEW Softail® Rocker™ FXCWC Seat cont.

- Passenger pillion pad “stows away”

2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Softail® Rocker™ Chassis

- Fork angle 36.5º rake
- Frame 38.5º rake
- New 49mm forks
- Risers & riser cap
- Hidden control wires in handlebar
- Deep bucket headlight

## NEW Rocker™ Chassis cont.

- 1” (25.4mm) X7N drive belt
- 133 tooth USA and HDI, 132 tooth for Japan
- Jounce bumper now suspension component and is tuned for compression dampening
- Different set of pivot shaft spacers due to frame width
- Swingarm oval profile unique color with fender mount

**Important Service Note:**
Rear fender mounts to swingarm and cannot be used as a seat or loaded in any manner

2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Rocker™ Painted Parts

- Rear fender – suspended (cantilever design)
- Fuel tank cloisonné
- Tank console with single plug for service
- Ghost flame two–tone
- Stainless steel painted components for FXCW
- Chrome components for FXCWC

## NEW Rocker™ Tail Section & Lighting

- Multi-purpose rear directional/stop/tail LED lights
- No center mounted tail lights for domestic
- HDI use Amber/Red LED technology in directional for indicators and stop
- HDI models have center stop and visible rear white light
- Domestic license plate module using LED

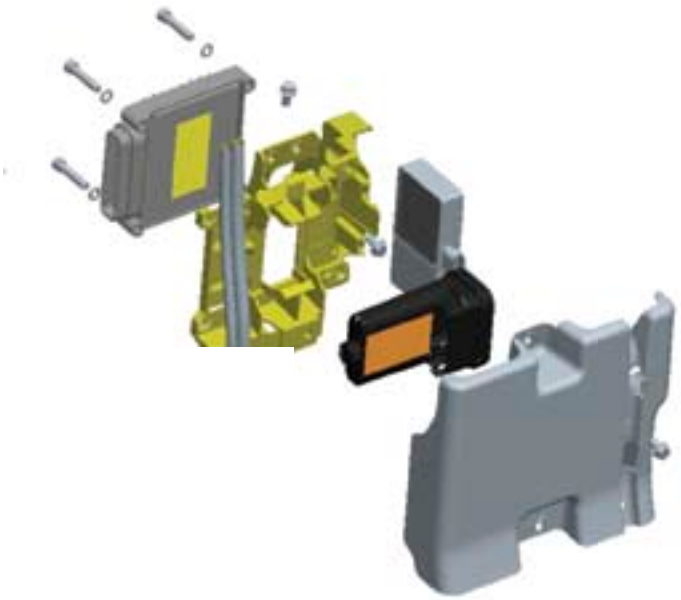
2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Rocker™ Exhaust

- New dual exhaust pipes, shields and support/cross over bracket for wide frame

## NEW Rocker™ Electric Caddy

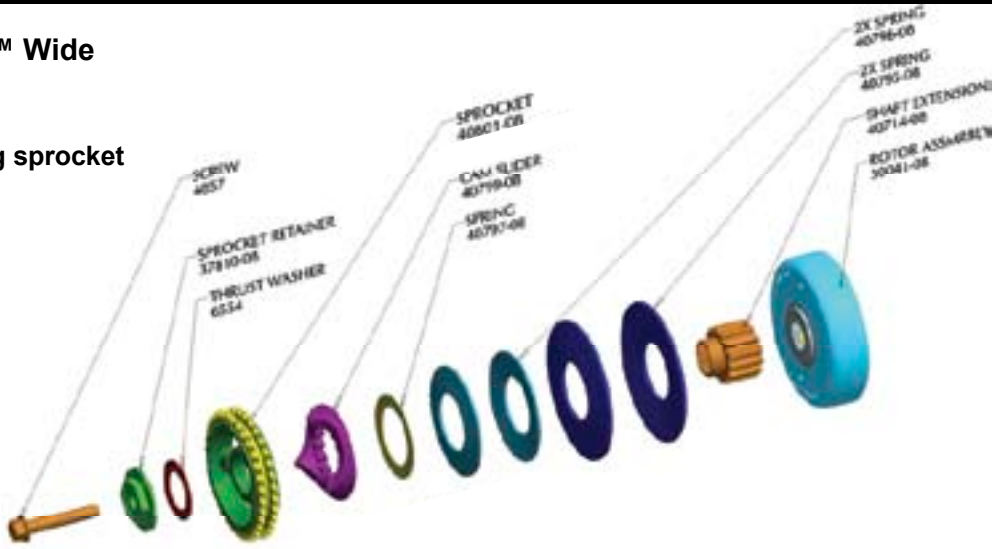
- New electrical caddy & cover needed due to rear fender



2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

## NEW Rocker™ Wide Primary

- Compensating sprocket changes



## NEW Rocker™ Ignition

- Grenade style ignition coil
- Unique ignition switch
  - Service with special tool HD-48904

2008 MODEL YEAR TECHNICAL FORUM SOFTAIL®

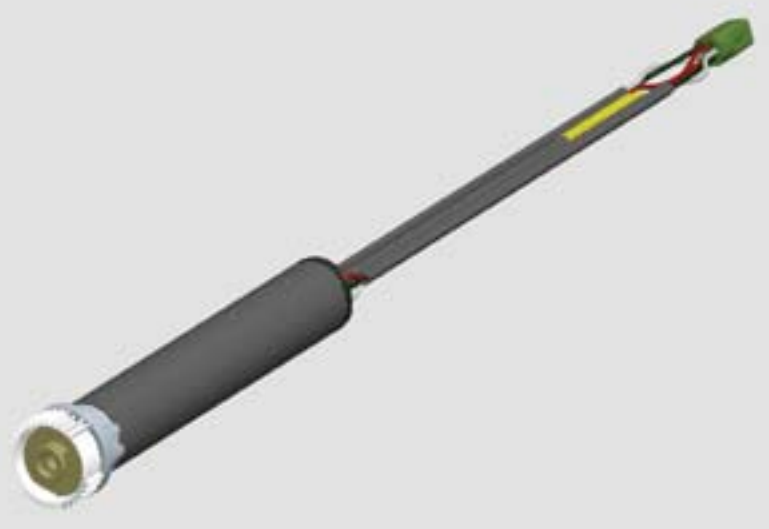
## NEW Rocker™ Horn

- Styled horn

# TOURING FAMILY

## NEW Electronic Throttle Control

- New throttle grip sensor and induction module
- Sends rider input to ECM electronically
- Eliminates throttle cables



Throttle grip sensor shown

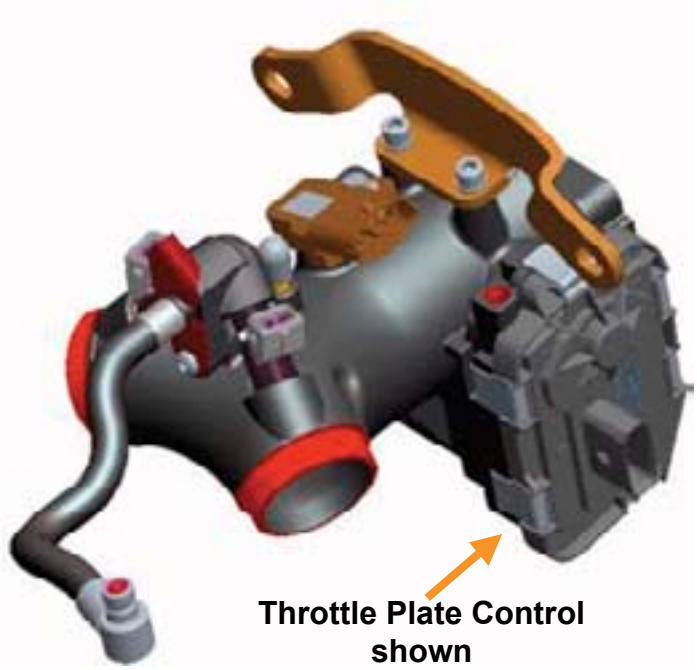
2008 MODEL YEAR TECHNICAL FORUM TOURING

## NEW Electronic Throttle Control cont.

- ETC throttle grip sensor wiring inside handlebar
- Throttle plate position controlled by the ECM
- Will not retrofit

## NEW Induction Modules

- New fuel line
- Redesigned connector at tank
- Electronic throttle plate control is not serviceable



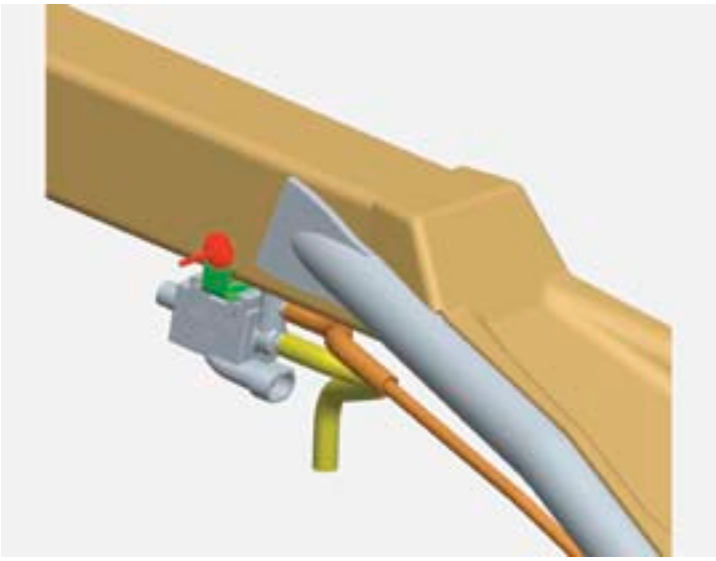

2008 MODEL YEAR TECHNICAL FORUM TOURING

## NEW ECM / Location

- Now under seat
- Positive retention on harness connector
- New ECM caddy
- ECM controls cruise control and throttle plate
- Cruise control module eliminated
- Battery terminals top mounted

## NEW Frame Changes

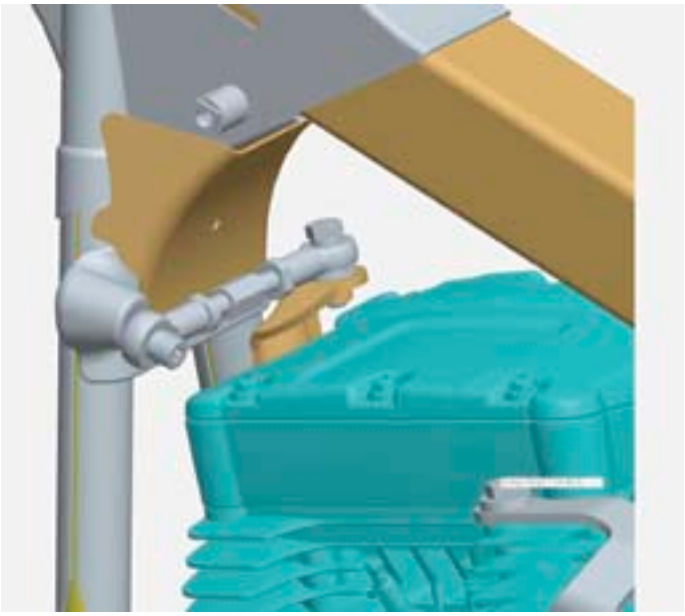
- New purge solenoid mount; same location now riveted to frame
- Redesigned front motor mount to limit travel
- Redesigned battery tray and horn bracket integrated with the frame
- Horn bracket not a lifting point for engine



2008 MODEL YEAR TECHNICAL FORUM TOURING

## NEW Frame Changes cont.

- Front stabilizer link relocation
- Redesigned front cylinder head for stabilizer bracket



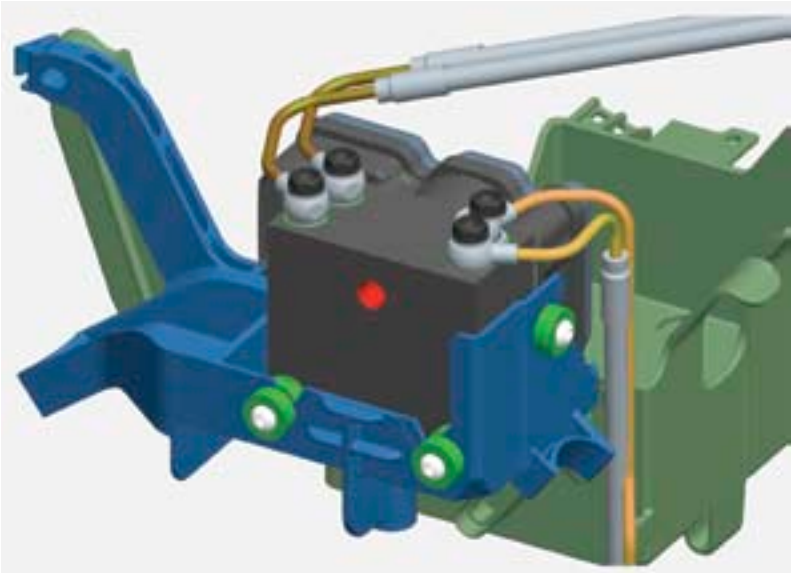
## Brembo® Brakes

- New 300mm semi-floating brake rotors brake pad material and calipers
- Two piece design rear caliper/mount
- Brake lines, clutch levers, and foot levers are all new
- Bleed screw incorporated into banjo bolt on front calipers
- Calipers are not rebuildable
- Use Dot 4 brake fluid

2008 MODEL YEAR TECHNICAL FORUM TOURING

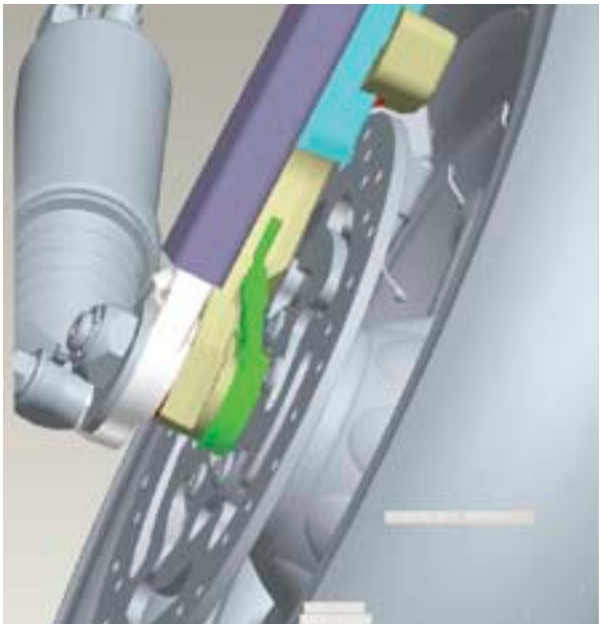
## ABS Brake System

- New ABS pump and lines
- Non-linked system
- Digital Technician II needed to bleed ABS Brakes
- OE factory option for all FL touring models
- Footboard and brake pedals on FL Softail® and Touring models will be commonized for 2008 models
- Behind right side cover



## ABS Brake System cont.

- 2008 wheel hubs are machined to accommodate ABS
- Tone ring integral to wheel bearing
- Wheel spacer is the sensor and is directional
- Non ABS models have different bearings and additional spacers
- ABS bearings are directional and are assembled gray side out / orange side in



**Important Service Note:**
The use of a magnetic parts tray will adversely affect ABS wheel bearings

2008 MODEL YEAR TECHNICAL FORUM TOURING

## Redesigned Fuse Block

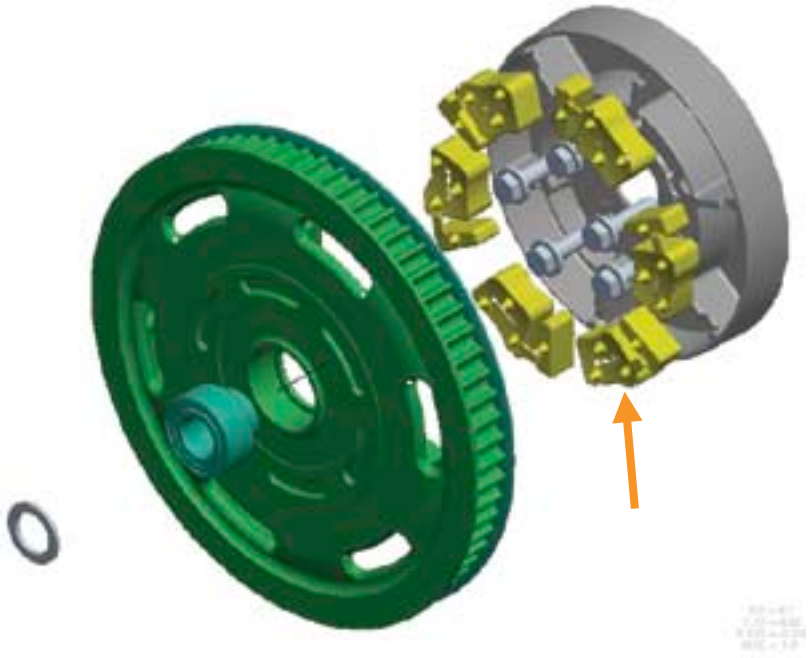
- All fuses under left side cover
- Maxi fuse inserts into block and will not be installed at the factory

## Data Link Relocation

- Now under left side cover

## New Isolated Drive System

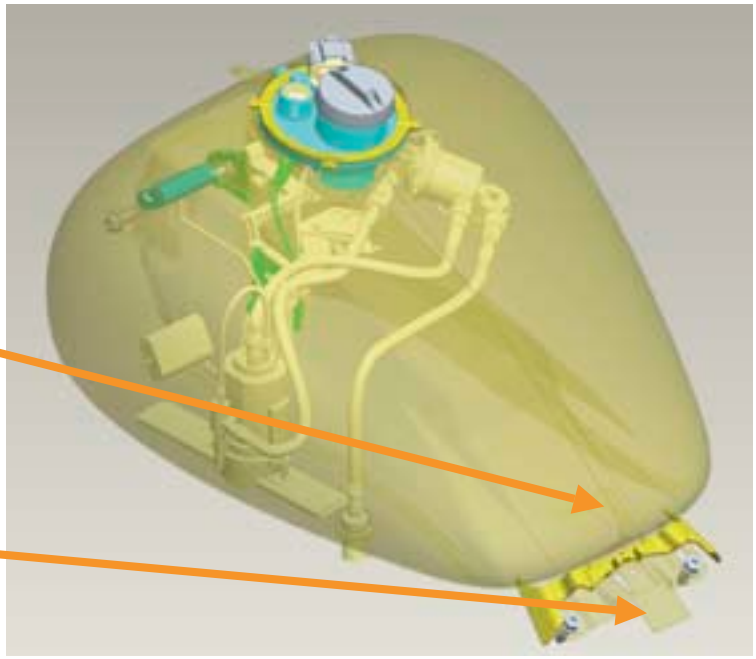
- Bolt-on component for the rear wheel pulley
- Smoothes varying loads to drive train
- Inspect rubber shoes during tire changes
- Similar to VRSC™ design



2008 MODEL YEAR TECHNICAL FORUM TOURING

## New Six Gallon Fuel Tank

- New top plate lock ring
- New pump module and fuel level sender for all 2008 Touring models
- Crossover area now located in rear of tank
- Special tool HD-48646 needed to service fuel pump
- Tank has tab to engage seat



## New Six Gallon Fuel Tank cont.

- Crossover line eliminated
- Will not retrofit

2008 MODEL YEAR TECHNICAL FORUM TOURING

## New Consoles

- Low profile and restyled
- Redesigned fuel door
- New console inserts
- DIN connector now faces rider
- Deuce style console mount

## Handle Bar Cover Insert

- Road King® Models
- Allows easy access to handle bar clamp fasteners

2008 MODEL YEAR TECHNICAL FORUM
TOURING

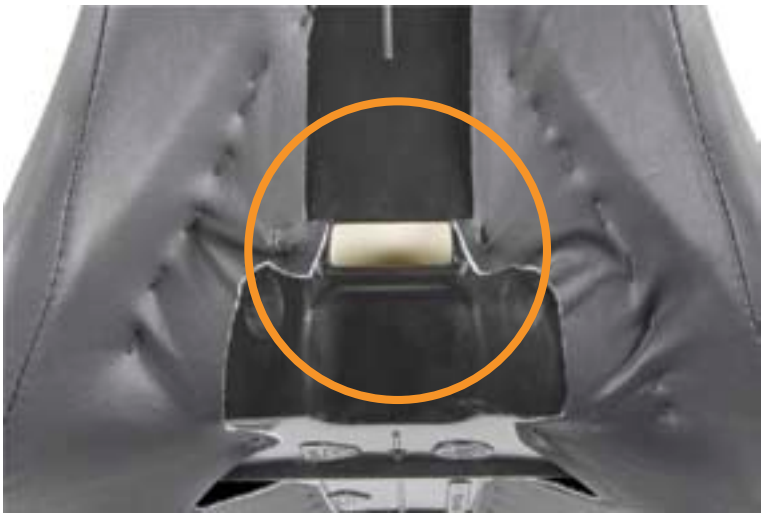
## Catalyst Mufflers

- California and HDI Touring models only

## New Seats

- Injection molded seat base
- Restyled upholstery
- New FLHT seat contour
- New tank tab slides into seat
- New wire harness trough under seat/tank

**Important Service Note:**
**Verify positive seat engagement when servicing**



2008 MODEL YEAR TECHNICAL FORUM TOURING

## Adjustable Willie Wings

- Adjustable wind deflectors
- Standard on Ultra Classic® models
- Will not retrofit

## New Shorter Radio Antennas

- OE on FLTR and FLHX
- Retrofit to 1998

# CVO™ FAMILY

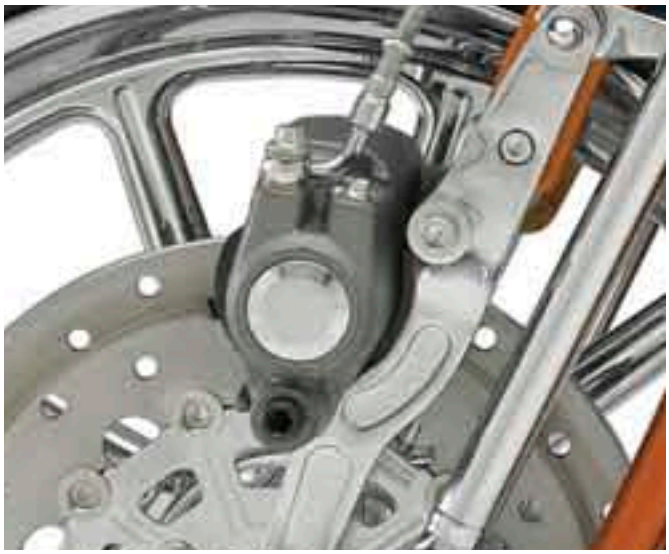
## CVO Powertrain

- All CVO models retain 110 cubic inch motor
- Powertrain finishes are granite and chrome

2008 MODEL YEAR TECHNICAL FORUM CVO

## NEW Brake Calipers

- Softail® and Dyna® CVO models receive granite color brake calipers

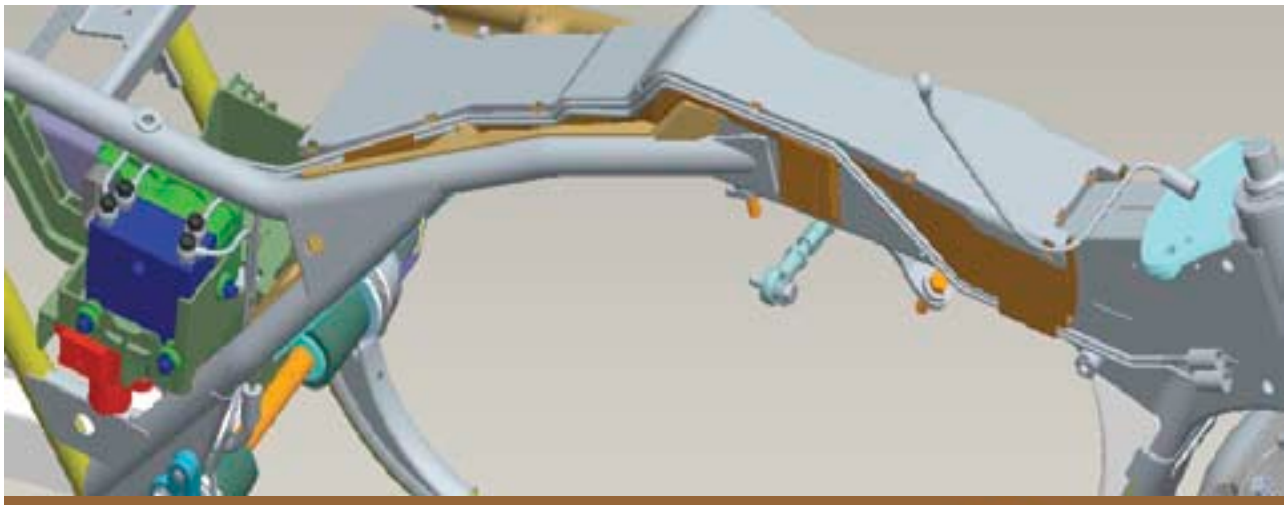


## Ignition Keys

- CVO models receive a commemorative gold ignition key with display box

## ABS Brakes

- Touring CVO models are equipped with anti-lock brakes



## FXSTSSE² Screamin' Eagle® Softail® Springer®

- 105th Anniversary Paint Scheme
  Crystal Copper / Black Onyx
  Burgundy Pinstripe

- Serialized 105th Anniversary
  Cloisonné

## FXSTSSE² Screamin' Eagle® Softail® Springer® cont.

**Additional Paint schemes**

- Inferno Orange / Fireburst Flames
  Fire Red Pinstripe

- Black Diamond / Smoked Candy Flames
  Pale Gold Pinstripe

## FXSTSSE² Screamin' Eagle® Softail® Springer® cont.

- Color matched headlight

2008 MODEL YEAR TECHNICAL FORUM CVO

## NEW FXSTSSE² Screamin' Eagle® Softail® Springer® cont.

- Heavy breather air cleaner with 110" logo identified on the element

## NEW FXSTSSE² Screamin' Eagle® Softail® Springer® cont.

- Redesigned Springer® front end and fender
- Now a 19" wheel

## FXDSE² Screamin' Eagle® Dyna®

- 105th Anniversary Paint Scheme
  Crystal Copper / Black Onyx
  Burgundy Pinstripe
- Serialized 105th Anniversary Cloisonné

## FXDSE² Screamin' Eagle® Dyna® cont.

**Additional Paint Schemes**

- Scarlet Red Pearl / Dark Crimson
- Candy Cobalt / Midnight Blue
- Color matched battery box, electrical panel cover, coil cover

2008 MODEL YEAR TECHNICAL FORUM CVO

## FXDSE² Screamin' Eagle® Dyna® cont.

- Chrome handlebar clamp with integrated tachometer mount
- Chrome full-length tank console with ignition switch
- Turn signal indicators integrated into console
- Spun aluminum metal faced 4" tachometer
- Spun aluminum metal faced speedometer
- Flush mount LED fuel gauge and filler cap

## FXDSE² Screamin' Eagle® Dyna® cont.

- Foot pegs, shift peg, brake pedal pad and hand controls are from the Stealth collection

2008 MODEL YEAR TECHNICAL FORUM CVO

## FXDSE² Screamin' Eagle® Dyna® cont.

- Mirror chrome slotted six-spoke wheels with matching rotors

## FXDSE² Screamin' Eagle® Dyna® cont.

- 29º rake and 29º fork angle
- Fork legs retain the same inverted style as original FXDSE
- Some fork components change dimensionally in conjunction with above rake and fork angles
- Refer to parts literature for specific component changes

2008 MODEL YEAR TECHNICAL FORUM CVO

## FLHRSE4 Screamin' Eagle® Road King®

- 105th Anniversary Paint Scheme
  Crystal Copper / Black Onyx
  Burgundy Pinstripe

## FLHRSE4 Screamin' Eagle® Road King® cont.

**Additional Paint Schemes**

- **Diamond Black / Silver Dust with Ghost Flames**
- **Twilight Blue / Candy Cobalt with Ghost Flames**

2008 MODEL YEAR TECHNICAL FORUM CVO

## FLHRSE4 Screamin' Eagle® Road King® cont.

- **Elimination of flush mount gas cap and fuel gauge**

## FLHRSE4 Screamin' Eagle® Road King® cont.

- New turn indicator position

## FLHTCSE3 Screamin' Eagle® Ultra Classic® Electra Glide®

- 105th Anniversary Paint Scheme
  Crystal Copper / Black Onyx
  Burgundy Pinstripe

# FLHTCSE3 Screamin' Eagle® Ultra Classic® Electra Glide® cont.

**Additional Paint Schemes**

- **Canyon Copper / Stardust Silver**
  **Fire Red Pinstripe**
- **White Frost / Silver Mist**
  **Silver Pinstripe**

- **FLHTCSE3 now features an electric lock push button key fob along with the dash panel lock button**
  - **Key fob is separate from the security fob**

# BUELL® FAMILY

## NEW One Piece Induction Module

- New throttle body incorporates a pintle style Idle Air Control (IAC) unit
- Idle speed is now controlled by the new DDFI3 ECM and the IAC
- The idle speed adjustment cable has been eliminated
- Progressive throttle cam on the throttle body to decrease twist sensitivity at closed throttle and reduce overall angle of rotation necessary to fully open the throttle

2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW One Piece Induction Module cont.

- The plastic bushings on throttle shaft have been replaced with ball bearings
- New fuel rail/IAC housing design
- New Throttle position sensor and DDFI3 ECM eliminate the need to perform TPS zero procedure
- Will not retrofit

## NEW Intake Flanges and Bolt Hole Location

- No change to ports
- New intake flanges and fastener orientation improve assembly and service access
- Common with Sportster® models
- New intake flanges use current intake seals

2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW Pre-crushed Head Gasket

- O-ring no longer required
- No other procedural change
- Supersedes prior gaskets

**Important Service Note:**
Service kits may contain the o-rings for prior model years. Do not use O-rings with this new head gasket.

## NEW Piston Updates

- 1203cc-7100 rpm redline (was 6800 rpm)
  - 6800 rpm sustained (was 6400 rpm)
- 984cc-7500 rpm redline (no change)
  - 7100 rpm sustained (was 7000 rpm)
- Will retrofit

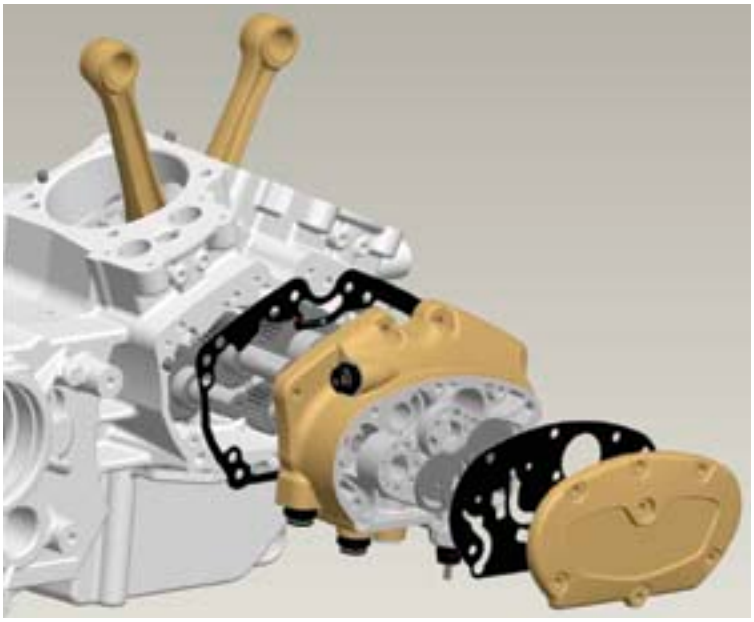
2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW Oil Pump

- Pump located in cover
- New oil pump incorporates a bypass relief valve. Provides improved lubrication at all engine speeds
- New design eliminates current bevel drive gears
- Gerotors directly driven by 3 & 4 cam shafts
- Oil pressure switch has been relocated to the bottom of the oil pump

## NEW Oil Pump cont.

- All threaded fittings and oil lines have been updated with jiffy-tite fittings which connect in oil pump cover
- Higher output and scavenge capacity gerotors
- Will not retrofit



2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW Cam Design

- New "K" style cam shafts have hollow shafts to provide pressurized oil to the cam bores
- Cam shafts 3 and 4 have an extended shaft with flats that are used to drive the oil pump gerotors
- “K" cams and the current "E" cams have the same specifications

## NEW Larger Capacity 8-Row Oil Cooler

- Change from 6-row oil cooler to 8-row oil cooler for increased cooling capacity
- New oil cooler lines with jiffy-tite fittings
- Changes to V-bracket, oil lines, and air scoop
- Engine oil should be at normal operating temperature (180°F/ 82 °C) for an accurate oil level reading
- Will not retrofit

2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW Crankcase Improvements

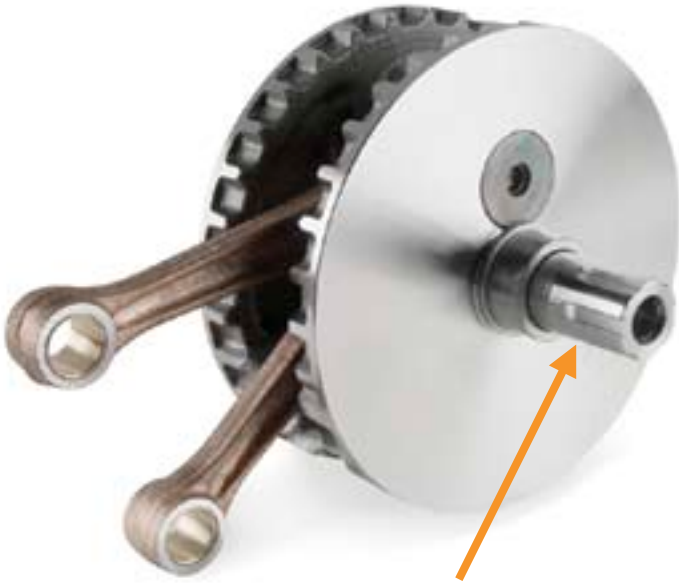
- Bronze bushings have been eliminated in the crankcases and oil pump assembly
- Cam bores are parent material aluminum alloy and receive pressure lubrication through hollow cam shafts

# NEW Crankshaft Position Sensor (CKP)

- DDFI3 and the CKP eliminate the static timing procedure
- Cam position sensor and timing cup have also been eliminated
- Located on the front left side of the crankcase

## NEW Flywheel

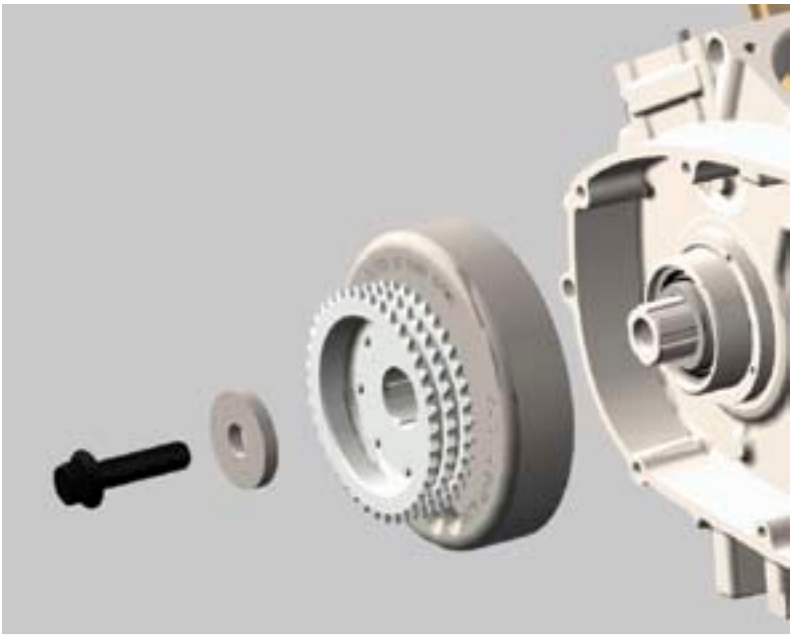
- Flywheel teeth added for CKP sensor
- Larger drive sprocket splines
- Larger 1.5 inch crank pin and bearing
- Stronger connecting rod material



## NEW Front Primary Sprocket

- Retained by fastener rather than sprocket nut
- Larger drive sprocket splines
- Internal threads replace external threads on left side of crank using a new sprocket fastener

**Important Service Note:**
**Fastener is one-time use only**



2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW 25th Anniversary Graphics

- Special Erik Buell autograph signature anniversary graphics will be positioned on the upper triple clamp for Firebolt models and on the handlebar clamp for all the other models.

## NEW Single-Phase Charging System

- The single-phase 32 Amp charging system is common to the Harley-Davidson® Sportster® platform with the exception of the wire lead lengths on the stator

2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW Header and Muffler w / Catalyst For European Markets

- HDI-complies with Euro 3 regulations
- Catalyst is located in muffler
- Changes to muffler inlet required header to change also

## NEW Oil Pump Cover & Decal

- Honors Buell 25th Anniversary
- Oil Pump Cover Decal
- New Oil lines and Fittings
- Clocked, 90º fittings eliminated
- All oil lines use jiffy-tite fittings

## NEW Pivot Shaft

- Torque new swingarm pivot shaft 44-46 ft. lbs. 60-62 Nm
- New pivot shaft and torque will retrofit previous XB models

## NEW HDI Side Stand Switch

- All XB models have tab for switch – Only HDI versions have the switch
- Switch installed on HDI Buells with enabled DDFI3 ECM
- The side stand switch is designed to prevent forward motion of the motorcycle while running and in gear with the side stand leg in the extended position

2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW Auxiliary Plug

- All XB models are now equipped with an auxiliary power connector for available P&A accessories, including heated grips
- Ulysses models will have heated grips as original equipment

## NEW Harness Update

- New DDFI-3 harness routing reduces amount of wire under sprocket cover
- New VSS plugs directly into main harness, common with Sportster models
- Cam position sensor and wiring have been eliminated and replaced with a crank position sensor
- Stator and regulator connectors and wiring have been relocated behind the new ram air scoop

2008 MODEL YEAR TECHNICAL FORUM BUELL®

## NEW Ulysses® Model Updates

- Ulysses® fork tubes have increased from 43mm to 47mm
- Forks are offset 5/8 inch forward with new triple clamps to increase stop to stop steering angle from 54 degrees to 74 degrees
- Front axle is offset 5/8th inch rearward in the new fork lower to maintain the original 54.1 inch wheelbase

## NEW Ulysses® Model Updates cont.

- New Ulysses® forks will use the same style pre-load adjusters as the Lightning® Super TT model
- Pre-load is determined by counting the number of turns on the adjuster rather than counting the number of exposed lines on the adjuster

# SERVICE AND TOOLS

## NEW ABS Brake Bleeding Procedure

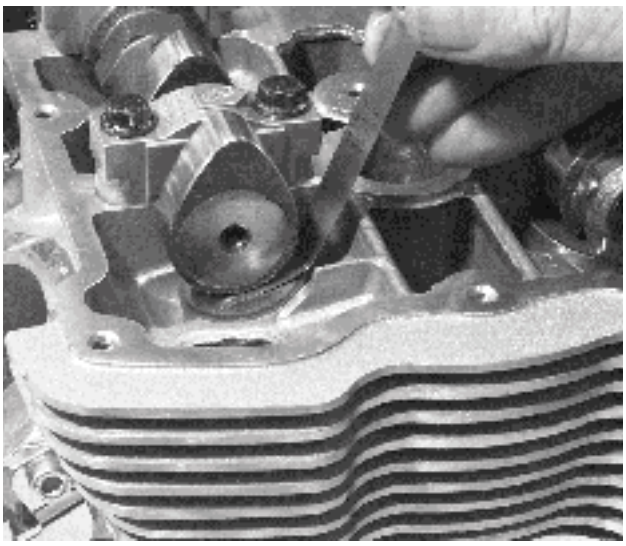
- See service manual for proper brake line routing
- ABS equipped motorcycles will have a different feel from motorcycles without this feature
- See brake bleed instructions using Digital Technician™ II
- Service replacement ABS modules will come primed/filled from Harley-Davidson® but will still require the brake bleed procedure to be performed using DT II

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

| ABS SYMPTOMS | CONDITION |
|---|---|
| Pulsing brake lever or pedal during an ABS event | Normal operation |
| Clicking sound during an ABS event | Normal operation |
| ABS lamp flashing | Normal operation - key turned to IGNITION – speed under 3 MPH (5 KM/H). |
| ABS continuously illuminated | ABS inoperative – refer to dealer for diagnostics. |
| Perceived “surge” while braking | Normal operation – noticeable when braking with one brake (front only or rear only). Result of a reduction in deceleration normally caused by cracks or bumps in road, engine braking (high engine RPMs causing the rear wheel to slow down), hard braking at slow speeds, and other conditions. |
| Temporarily stiff rear brake pedal | Normal operation – engine braking (high engine RPMs causing the rear wheel to slow down) or down shifting activates ABS. If applying the rear brake at the same time or immediately after, the ABS may be closing a valve to prevent pressure to the rear brake. |
| Tire chirp | Normal operation – depending on surface, tire can chirp without locking the wheel. |
| Black mark on pavement | Normal operation – depending on surface, tire can leave a black mark without locking the wheel. |
| Wheel lock at low speed | Normal operation – ABS does not activate on front wheel below 3 MPH (5KM/H) or on rear wheel below 5 MPH (8 KM/H). |
| No braking over a series of ripples or bumps | Normal operation - speed of ABS reaction interfacing with frequency of road conditions signaling wheel lock up |

## NEW VRSC™ Valve Lash Service Intervals

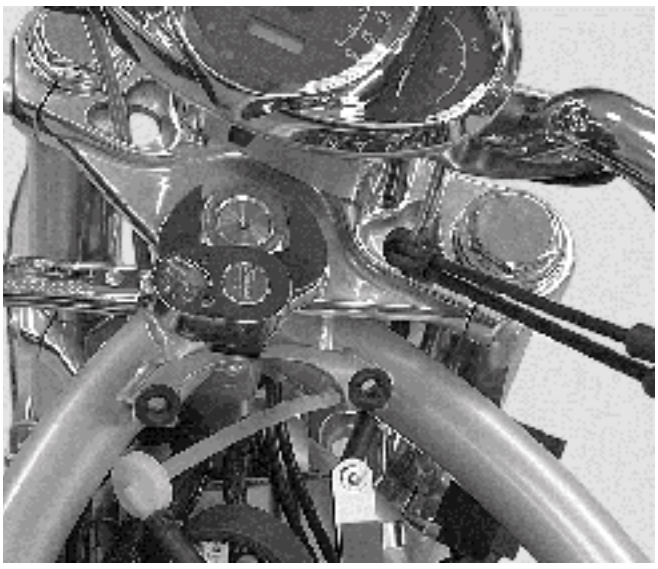
- Lash Interval will be every 15,000 miles Specification includes all prior 1130cc VRSC™ model years
- Lower cost of ownership for VRSC™ riders
- 2005-2006 CVO and 2007 VRSCX 1250cc motorcycles will remain at current intervals



2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW VRSC™, Dyna® & Softail® Steering Stem Change/Torque Specification

- Due to a material change in the fork stem and a new lubricated nut and hardened washer, the torque specification has increased for the above three models
- See upcoming service bulletin to address previous VRSC™, Dyna® and Softail® models



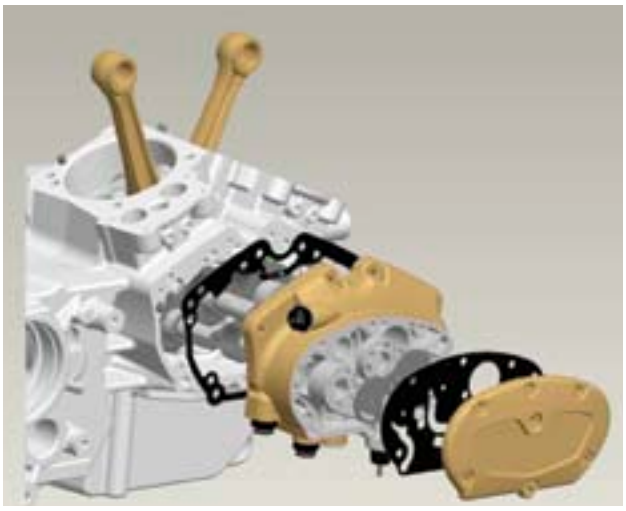
## NEW VRSC™ $O^2$ Sensor Tip

- Use HD-48262 $O^2$ sensor socket on front $O^2$ sensor
- Rear $O^2$ sensor is best serviced with an open end wrench

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Buell® Oil Pressure Specifications

- Oil pressure should be 10-16 PSI at idle and normal operating temperature (was 7-12 PSI at idle)
- Oil pressure should be 20-28 PSI at 3000 RPM and normal operating temperature (was 10-17 PSI at 2500RPM)
- Torque value for the oil pressure switch for 2008 XB models has increased to 96-120 in-lbs (10.8-13.6 Nm)
- 2007 and earlier XB models torque value is 50-70 in-lbs, 5.6-7.9 Nm)



## Increased Axle Torque Specifications

- Check service manual for the increased specifications for both front and rear new hollow axles

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Breakout Box for ABS HD-48642

- Essential Tool
- For ABS electrical diagnostics
- ABS diagnostics are performed with Digital Tech II

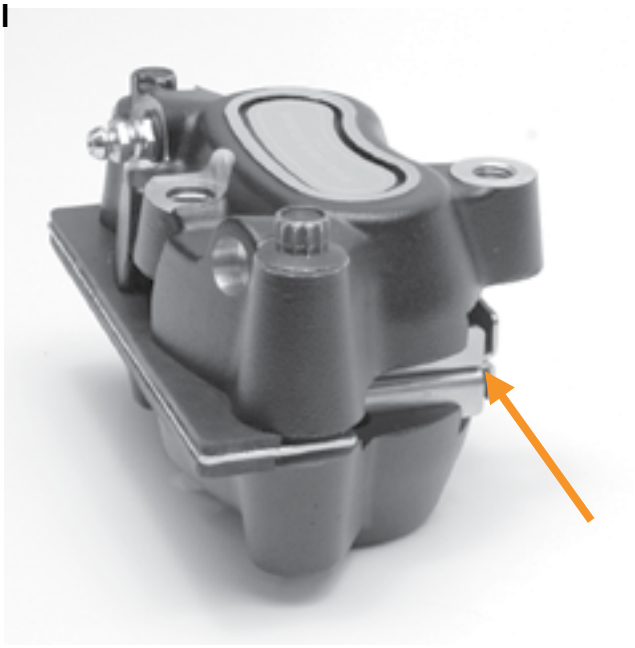
## NEW Six Gallon Fuel Tank Ring Removal Tool HD-48646

- Essential Tool
- Removes lock ring to allow access to fuel pump on the new six gallon FL tanks

**Important Service Note:**
Use "paint" precautions when servicing fuel pump taking care not allow tool to separate from ratchet extension. This tool is essential for fuel pump service on the new FL tanks.

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Front Brake Piston Removal Tool HD-48649



- Essential Tool
- For removing front brake caliper pistons on new Hayes® brakes on Softail® and Dyna® models

## NEW Rear Brake Piston Removal Tool HD-48648

- Essential Tool
- For removing rear brake caliper pistons on new Hayes® brakes
- For Softail® and Dyna® models

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Wheel Bearing ABS Collet Tool HD-44060-11

- Essential Tool
- This tool is added to parent tool 44060-B
- Removes “deep” ABS 25mm bearings on VRSC® and FL wheels

**Important Service Note:**
ABS sensor side of the wheel bearings are distinguished by the gray color of the seal

## NEW Ignition Switch Spanner Tool for Softail® Rocker™ HD-48094

- Essential Tool
- For Softail® Rocker™ models
- Removes and installs ignition switch lock ring

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Axle Alignment Plugs HD-48856-1, -2

- Essential Tool
- Provides alignment point for the new XL and Dyna® hollow axles

## NEW VRSC™ Clutch Hub Holder HD-48625

- **Essential Tool**
- Accommodates new 4-slot slipper clutch securing the assembly when removing the clutch hub nut

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Crankshaft Guide tool HD-42326-B

- **Buell® essential tool**
- **Similar to HD-42326-A**
- **Guides Buell® crankshaft into left main bearing**

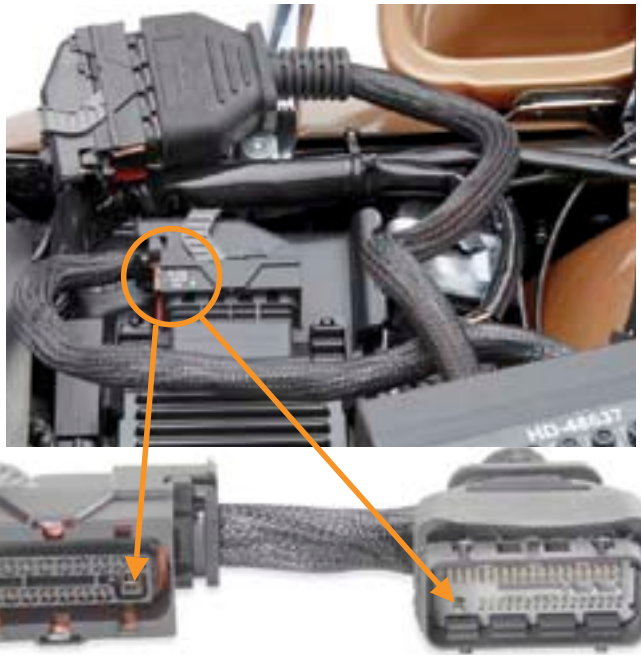
## NEW Balancer Sprocket Shaft Alignment Tool

**HD-48615-gold in color**

- Essential Tool
- .019" is the specification tolerance of the sprockets
- Similar to HD-44064-A
- Verifies balancer sprocket alignment for Softails®
- For 2007 and later Softails®

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Breakout Box – FL Only HD-48637



- Essential Tool
- For new FL ECM
- Connector on harness side utilizes a cam lock system that brings the mated connectors together fully

**Important Service Note:**

New connector can be installed backward; if the large brass pin is not properly aligned, the connector could be damaged and require a new wiring harness. Warning to align pin printed on the connecter-see where circled.

## NEW Engine rotating wrench B-48865

- Buell® available tool
- For air-cooled Buell® motors

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Torque plates for 110” HD-48627

- Similar to HD-42324-A
- Simulates 110” cylinder assembled condition for measuring on the bench

## NEW Valve Guide Installer HD-48628

- For 110 cu. in. motors
- Tool stamped for its intended use

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Valve Guide Seal Installer HD-48644

- For 110” Big Twin valve service
- Tool stamped for its intended use

## NEW Big Twin Engine Cradle HD-42310-25B

- Fits all Twin Cam 96™ and 2006 Dyna® crank cases
- Continues to service Beta motors but now Alpha motors as well

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Cam Needle Bearing Installer HD-42325-14

- Permits deeper installed depth of Twin Cam inner cam needle bearings
- Parent tool is now HD-42325-B

## NEW Trans Main Shaft Race Remover HD-34902-8 & -9 & -10

- Improved tool to ease race removal
- For All Big Twins 1984 and later
- Parent tool is now HD-34902- C

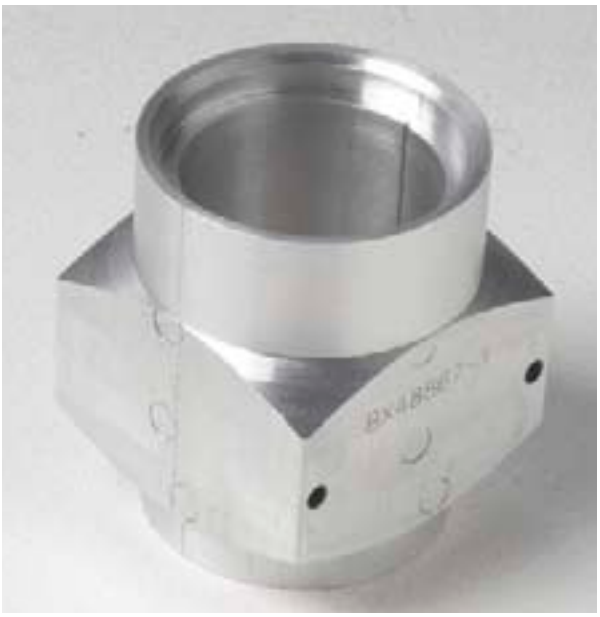
2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Electrical Crimp Tool HD-39965-A

- Replacement for 1994 original Deutsch® crimp tool

## NEW Fork Seal/Dust Cap Installer (47mm) B-48867

- Buell® Essential Tool
- Installs new 47mm fork seal
- Buell® Models



2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Breakout Box B-48115

- Buell® essential tool
- For Buell® models

## NEW Electrical Crimper-Tyco®

- Buell® essential tool
- B-48117
- For Buell® models

## NEW Sprocket Shaft Adapter and collar
## B-42579-6-Adapter
## B-42579-7-Collar

- Buell® essential tool
- Parent tool updates to B-42579-A
- Adapts existing tool to new crankshaft splines

## NEW Sprocket Shaft Seal Installer B-45676-A

- Buell® essential tool
- Retrofit tool for new splines

2008 MODEL YEAR TECHNICAL FORUM SERVICE AND TOOLS

## NEW Speedometer Test Cable HD-41354-1

- Adapts tester to newer VSS connector
- For all Harley-Davidson® and Buell® models

## NEW Compensator Bearing Remover/Installer HD-48921

- For VRSC™, Touring and HDI XL models
- Removes and installs compensator wheel bearing

Base Sleeve Driver

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